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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,636	04/04/2001	Scott D. Thompson	PP00-4	3822

7590 02/27/2006

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EXAMINER	
MILLER, BRANDON J	

ART UNIT	PAPER NUMBER
2683	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/825,636	THOMPSON, SCOTT D.	
	Examiner	Art Unit	
	Brandon J. Miller	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-29,31-36 and 40-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-29,31-36 and 40-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-3, 8-9, 11-14, 19, 26, 31-36, 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zendle in view of Carnegie.

Regarding claim 2 Zendle teaches wherein there is a plurality of remote stations (see col. 6, lines 47-54).

Regarding claim 3 Zendle teaches a beam former linked between the hub and the mulit-beam antenna (see col. 6, lines 57-62).

Regarding claim 8 Zendle teaches a wireless network system comprising a communication hub lined to a source (see col. 6, lines 51-54 and col. 7, lines 39-45). Zendle teaches at least one remote station which communicates with the communication hub in order to exchange information with the source, each of the at least one remote station including a directive antenna (see col. 6, lines 47-51 & 63-65 and col. 7, lines 2-9). Zendle teaches a multi-beam antenna connected to the communication hub to allow the exchange of information between the communication hub and each of the at least one remote station, the multi-beam antenna producing a plurality of beams for such exchange of information (see col. 6, lines 57-62 and Fig. 3). Zendle does not specifically teach an Ethernet switch as part of the hub which is

linked between the source and the multi-beam antenna. Zendle does teach a hub linked to service provider nodes (see col. 6, lines 51-54) and providing telecommunication services that include broadband multimedia services such as Ethernet (see col. 8, lines 3-25). Carnegie teaches an Internet switch as part of the hub which is linked between the source and an antenna (see col. 7, lines 42-47 and FIG. 1). It would have obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include an Ethernet switch as part of the hub which is linked between the source and the multi-beam antenna because an Ethernet switch can be used facilitate broadband multimedia services such as the Ethernet and it would allow for the efficient delivery of information from a service provider to a plurality of clients.

Regarding claim 9 Zendle teaches at least one radio transceiver as part of the hub which is linked between the source and the multi-beam antenna (see col. 6, lines 49-56).

Regarding claim 11 Zendle and Carnegie teach a device as recited in claim 9 except for a Ethernet switch as part of the hub which is linked between the source and the at least one radio transceiver. Carnegie teaches an Internet switch as part of the hub which is linked between the source and a radio transceiver (see col. 7, lines 42-47 and FIG. 1). It would have obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a Ethernet switch as part of the hub which is linked between the source and the at least one radio transceiver because an Ethernet switch can be used facilitate broadband multimedia services such as the Ethernet and it would allow for the efficient delivery of information from a service provider to a plurality of clients.

Regarding claim 12 Zendle teaches a radio transceiver for each of the at least one remote station as part of the hub which is linked between the source and the multi-beam antenna (see col. 6, lines 47-51 and Fig. 3).

Regarding claim 13 Zendle and Carnegie teach a device as recited in claim 11 and is rejected given the same reasoning as above.

Regarding claim 14 Zendle teaches a more than one multi-beam antenna and wherein each of the multi-beam antennas includes a primary service sector in which are the plurality of beams of each of the multi-beam antennas (see col. 6, lines 57-62, col. 7, lines 10-16 and Fig. 3).

Regarding claim 19 Zendle teaches radiating elements on a circuit board (see col. 4, lines 61-66).

Regarding claim 26 Zendle teaches at least two non-adjacent beams of the plurality of beams are of the same frequency (see col. 7, line 13 and Fig. 3).

Regarding claim 31 Zendle teaches a wireless network system comprising a communication hub lined to a source (see col. 6, lines 51-54 and col. 7, lines 39-45). Zendle teaches at least one remote station which communicates with the communication hub in order to exchange information with the source, each of the at least one remote station including a directive antenna (see col. 6, lines 47-51 & 63-65 and col. 7, lines 2-9). Zendle teaches a multi-beam antenna connected to the communication hub to allow the exchange of information between the communication hub and each of the at least one remote station, the multi-beam antenna producing a plurality of beams for such exchange of information (see col. 6, lines 57-62 and Fig. 3). Zendle teaches a beam former linked between the hub and multi-beam antenna (see col. 6, lines 57-62). Zendle does not specifically teach an Ethernet switch as part of the hub

which is linked between the source and the beam former. Zendle does teach a hub linked to service provider nodes (see col. 6, lines 51-54) and providing telecommunication services that include broadband multimedia services such as Ethernet (see col. 8, lines 3-25). Carnegie teaches an Internet switch as part of the hub which is linked between the source and an antenna (see col. 7, lines 42-47 and FIG. 1). It would have obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include an Ethernet switch as part of the hub which is linked between the source and the multi-beam antenna because an Ethernet switch can be used facilitate broadband multimedia services such as the Ethernet and it would allow for the efficient delivery of information from a service provider to a plurality of clients.

Regarding claim 32 Zendle and Carnegie teach a device as recited in claim 31 except for including at least one radio transceiver as part of the hub and linked between the Ethernet switch and the beam former. Zendle does teach a beam former (see co. 6, lines 57-59). Carnegie does teach at least one radio transceiver as part of a hub and linked between an Ethernet switch and an antenna (see col. 7, lines 42-47 and FIG. 1). It would have obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include at least one radio transceiver as part of the hub and linked between the Ethernet switch and the beam former because an Ethernet switch can be used facilitate broadband multimedia services such as the Ethernet and it would allow for the efficient delivery of information from a service provider to a plurality of clients.

Regarding claim 33 Zendle and Carnegie teach a device as recited in claim 2 and is rejected given the same reasoning as above.

Regarding claim 34 Zendle and Carnegie teach a device as recited in claim 2 and is rejected given the same reasoning as above.

Regarding claim 35 Zendle teaches a more than one multi-beam antenna and wherein each of the multi-beam antennas includes a primary service sector in which are the plurality of beams of each of the multi-beam antennas (see col. 6, lines 57-62, col. 7, lines 10-16 and Fig. 3).

Regarding claim 36 Zendle and Carnegie teach a device as recited in claim 35 and is rejected given the same reasoning as above.

Regarding claim 41 Zendle teaches a method of a source communicating with a plurality of remote stations using a wireless network system, the wireless network system including a communication hub linked to the source (see col. 6, lines 47-54 and col. 7, lines 39-45). Zendle teaches at least one remote station which communicates with the communication hub in order to exchange information with the source, each of the at least one remote station including a directive antenna (see col. 6, lines 47-51 & 63-65 and col. 7, lines 2-9). Zendle teaches a multi-beam antenna connected to the communication hub to allow the exchange of information between the communication hub and each of the at least one remote station, the multi-beam antenna producing a plurality of beams for such exchange of information (see col. 6, lines 57-62 and Fig. 3). Zendle teaches linking each of the at least one remote station to one of the plurality of beams (see col. 6, lines 57-60 and Fig. 3). Zendle teaches coordinating sending and receiving of the information between the source and remote station by way of the plurality of beams using the hub (see col. 6, lines 47-62, col. 7, lines 28-37 and col. 8, lines 3-24). Zendle does not specifically teach an Ethernet switch as part of the hub which is linked between the source and the beam former. Zendle does teach a hub linked to service provider nodes (see col. 6, lines 51-

54) and providing telecommunication services that include broadband multimedia services such as Ethernet (see col. 8, lines 3-25). Carnegie teaches an Internet switch as part of the hub which is linked between the source and an antenna (see col. 7, lines 42-47 and FIG. 1). It would have obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include an Ethernet switch as part of the hub which is linked between the source and the multi-beam antenna because an Ethernet switch can be used facilitate broadband multimedia services such as the Ethernet and it would allow for the efficient delivery of information from a service provider to a plurality of clients.

Regarding claim 42 Zendle and Carnegie teach a device as recited in claim 32 and is rejected given the same reasoning as above.

Regarding claim 43 Zendle and Carnegie teach a device as recited in claim 35 and is rejected given the same reasoning as above.

Regarding claim 44 Zendle and Carnegie teach a device as recited in claim 35 and is rejected given the same reasoning as above.

Claims 4-5, 10, 15-18, 20-25, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zendle in view of Carnegie and Dent.

Regarding claim 4 Zendle and Carnegie teach a device as recited in claim 3 except for a beam former that includes the use of an NxN hybrid coupling matrix having N input ports and N radiating elements and wherein a value N may be any radix 2 number. Zendle does teach a beam former (see col. 6, lines 57-59). Dent teaches a beam that includes the use of an NxN hybrid coupling matrix having N input ports and N radiating elements and wherein a value N may be any radix 2 number (see col. 9, lines 18-24). It would have been obvious to one of ordinary skill

in the art at the time the invention was made to make the device adapt to include a beam former that includes the use of an NxN hybrid coupling matrix having N input ports and N radiating elements and wherein a value N may be any radix 2 number because this would allow for improved matrix processing, that would allow a plurality of receivers to efficiently receive its intended signal with substantially reduced interference.

Regarding claim 5 Dent teaches a beam former that includes fixed microwave frequency phase delays, microwave frequency couplers, and microwave radiators (see col. 7, lines 56-60, col. 12, lines 4-6, 13-14 & 59-62).

Regarding claim 10 Dent teaches a switching matrix as part of a hub which is linked between one of the at least one radio transceiver and multi-beam antenna and a switching matrix allowing service of more than one of the at least one remote station by one radio transceiver (see col. 9, lines 8-14 & 18-23).

Regarding claim 15 Dent teaches including a received signal strength indicator device at the hub to monitor received signal strength of the beams and adapt power of the beams produced by the multi-beam antenna (see col. col. 3, lines 1-5).

Regarding claim 16 Dent teaches a controller for frequency coordination power control and data packet transmission (see col. 23, lines 61-67 and col. 24, lines 1-3).

Regarding claim 17 Dent teaches including a received signal strength indicator device at the at least one remote station to monitor received signal strength of the beams and adapt power of the beams produced by the multi-beam antenna (see col. 41, lines 42-49).

Regarding claim 18 Dent teaches a controller at the at least one remote station for frequency coordination, power control, and data packet transmission (see col. 13, lines 45-49, col. 18, lines 18-21, and col. 41, lines 42-49).

Regarding claim 20 Zendle and Carnegie teach a device as recited in claim 19 except for a multi-beam antenna that is of microstrip construction. Dent teaches a stripline directional coupler network (see col. 12, lines 13-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a multi-beam antenna that is of microstrip construction because this would allow for more efficient configurations of the antenna facilities in a wireless network system.

Regarding claim 21 Dent teaches a source that is linked to the hub by the multi-beam antenna (see col. 7, lines 50-55 and col. 8, lines 20-25).

Regarding claim 22 Zendle teaches at least one radio transceiver as part of a hub which is linked between a signal received by a multi-beam antenna and a port of the multi-beam antenna in which the signal is directed to so that the signal may be transmitted to one of the at least one remote station (see col. 6, lines 47-62).

Regarding claim 23 Dent teaches a device as recited in claim 10 and is rejected given the same reasoning as above.

Regarding claim 24 Dent teaches adjacent beams of a plurality of beams are of a different frequency (see col. 24, lines 7-11).

Regarding claim 25 Dent teaches at least one remote station that is within a 3 dB beamwidth of one of a plurality of beams (see col. 45, lines 63-66).

Regarding claim 27 Dent teaches at least two non-adjacent beams and remote stations linked to at least two non-adjacent beams include power adjustment such that sidelobes associated with communication of one of the non-adjacent beams is minimized so as to minimize interference with the other of the non-adjacent beams which are of the same frequency (see abstract, col. 4, lines 1-5, and col. 9, lines 16-20).

Regarding claim 28 Zendle teaches at least two remote stations that utilize a same beam of the plurality of beams for communication that have a different polarization of the directive antenna at each of the remote stations (see col. 8, lines 35-40 & 48-52 and Fig. 4).

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zendle in view of Carnegie, Dent and Niki.

Regarding claim 6 Zendle and Carnegie teach a device as recited in claim 3 except for a beam former that is in the form of stripline etched patterns on at least one circuit board. Petry does teach a beam former (see col. 3, lines 15-17). Dent teaches a stripline directional coupler network (see col. 12, lines 13-15). Niki teaches antenna means and other electronics etched patterns on at least one circuit board (see col. 1, lines 55-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a beam former that is in the form of stripline etched patterns on at least one circuit board because this would allow for more efficient configurations of the antenna facilities in a wireless network system.

Regarding claim 7 Petry and Clark teach a device as recited in claim 3 except for a beam former that is in the form of microstrip etched patterns on at least one circuit board. Petry does teach a beam former (see col. 3, lines 15-17). Dent teaches a stripline directional coupler

network (see col. 12, lines 13-15). Niki teaches antenna means and other electronics etched patterns on at least one circuit board (see col. 1, lines 55-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a beam former that is in the form of microstrip etched patterns on at least one circuit board because this would allow for more efficient configurations of the antenna facilities in a wireless network system.

Claim 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zendle in view of Carnegie and Kuntman.

Regarding claim 29 Zendle and Carnegie teach a device as recited in claim 8 except for a multi-beam antenna that is a circuit board of radiating elements covered by a radome. Kuntman teaches an antenna that is a circuit board of radiating elements covered by a radome (see col. 20, lines 58-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a multi-beam antenna that is a circuit board of radiating elements covered by a radome because this would allow for a flexible antenna array system used in wireless communication.

Response to Arguments

Applicant's arguments with respect to claims 2-29, 31-36, and 40-44 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies on in the remarks section of the response (see pages 9-15) are not recited in the rejected claim(s). Although the

claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hagerman et al U.S. Patent No. 6,301,238 discloses a directional-beam generative apparatus and associated method.

Boros et al. U.S. Patent No. 6,615,024 B1 discloses a method and apparatus for determining signatures for calibrating a communication station having an antenna array.

Joo et al. U.S. Patent No. 6,901,061 B1 discloses handoff control in an enterprise division multiple access wireless system.

Kobayashi U.S. Patent No. 6,359,873 B1 discloses a wireless LAN system and a transmitter-receiver in a wireless LAN system.

Meredith U.S. Patent No. 6,320,540 B1 discloses establishing remote beam forming reference line.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon J. Miller whose telephone number is 571-272-7869. The examiner can normally be reached on Mon.-Fri. 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 14, 2006

GEORGE ENG
SUPERVISORY PATENT EXAMINER